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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,713	12/09/2003	Paul Durrant	03226/358001	5463

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EXAMINER

ROSE, HELENE ROBERTA

ART UNIT	PAPER NUMBER
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2163

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/731,713	Applicant(s) DURRANT, PAUL	
	Examiner Helene Rose	Art Unit 2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-75 is/are pending in the application.
- 4a) Of the above claim(s) 1-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 39-75 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Detailed Action

1. This is a response to the amendment entered on 9/15/2006 in which claims 1-38 were cancelled. Claims 39-75 were added. No claims were amended.
2. Applicant's arguments entered on 9/15/2006 1-38 being cancelled and claims 39-75- were added have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections – 35 U.S.C 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. In view of the rejection to Claims 7,9,20,31 and 33 are rejected under 112, second paragraph. reciting the following limitation “or”, because it rendered the claims vague and indefinite. Examiner withdraws the pending rejection based on the cancellation of claims.

Claim Rejections – 35 U.S.C – 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. Claims 39-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Draves et al (US Patent No. 6,349,355, Date Filed: Feb. 6, 1997) in view of Glew et al (US Patent No. 5,948,097, Date Filed: August 29, 1996).

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Claims 39, 53, 55, and 62:

Regarding Claims 39, 53, 55, and 62, Draves teaches a method, computer system, and a computer program product of controlling a computer system comprising:

establishing a privileged region of memory for executing code in privileged mode (column 6, lines 43-47, Draves);

establishing a non-privileged region of memory for executing code in non-privileged mode (column 6, lines 43-47, respectively, Draves);

receiving a memory access request to access a memory address (column 7, lines 43-47, wherein makes calls to system or kernel functions that execute in the privileged execution mode, wherein the system execution function executes from the kernel virtual address space, with the user virtual address space being mapped into the kernel address space to allow the kernel to access data from the user address space, wherein makes calls is equivalent to request, and wherein virtual address is interpreted to be the memory address, Draves);

Draves disclose the limitations above. However, Draves does not disclose wherein determining whether the memory address is in the privileged region of memory in response to the request, nor does he disclose switching the system to privileged mode if the memory address is determined to be in the privileged region of memory.

On the other hand, Glew discloses wherein:

determining whether the memory address is in the privileged region of memory in response to the request (columns 5-6, lines 54-67 and lines 1-5, wherein the privileged kernel code may select from several service routines to handle the user code request, wherein a user code desires a printing function to be performed by the operating system kernel, wherein the user code desires a print function in to a memory device, wherein the kernel code reads the data value and calls the

appropriate privilege service routine to handle the request, wherein the kernel code also performs a check to make sure the sure code is authorized to request the function, Glew); and

switching the system to privileged mode if the memory address is determined to be in the privileged region of memory (column 2, lines 34-38, wherein if it is determine that the calling procedure has the appropriate access rights to the called procedure then execution transfers to the privilege code, wherein within the privilege code another call is performed in order to switch the kernel code, Glew).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Glew teachings into Draves system. A skilled artisan would have been motivated to combine as suggested by Glew [column 2, lines 34-38, Glew], in order to provide tailored and secured information. As a result, establishing an improved method of established a switching mechanism based on authentication measures.

Claims 40, 54, 56, and 63:

Regarding Claims 40, 54, 56, and 63, the combination of Draves in view of Glew teaches switching the system to non-privileged mode if the memory address is determined not to be in the privileged region of memory (column 10, lines 27-37, wherein the segment offsets that are active in the non-privileged execution mode are configured to have different values than the segment offsets that are active in the privileged execution mode, Draves)

Claims 41, 57, and 64:

Regarding Claims 41, 57, and 64, the combination of Draves in view of Glew teaches wherein determining whether the memory address is in the privileged region of memory is performed during a translation of a virtual address to a physical address (column 9, lines 20-26,

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wherein it is desired to shift or offset the address position of the user virtual address space when entering the privilege execution mode, wherein virtual address is interpreted to be a location in memory as it appears in a program, Draves).

Claims 42, 58, and 65:

Regarding Claims 42, 58, and 65, the combination of Draves in view of Glew teaches wherein the memory access request is a system call (column 7, lines 43-54, wherein section calls from a user process to a system function result in a switch from the non-privileged execution mode to the privileged execution mode and wherein the system function executes from the kernel virtual address space, and wherein a system call is defined to be a mechanism used by an application program to request service from the operating system, and wherein the user virtual address space being mapped into the kernel address space to allow the kernel to access data from the user address space, and wherein the virtual-to-physical mappings define how the different user address spaces are mapped into the kernel address space, Draves), and wherein the system call is implemented as a standard function call (column 6, lines 45-47, wherein make calls to system or kernel functions that execute in the privilege execution mode, Draves) .

Claims 43 and 66:

Regarding Claims 43 and 66, the combination of Draves in view of Glew teaches switching the system to non-privileged mode at the conclusion of the system call (column 13, lines 63-65, wherein returning from the kernel to the user process, the process switches back to the non-privilege execution mode and reverts to the original segment, Draves).

Claims 44 and 67:

Regarding Claims 44 and 67, the combination of Draves in view of Glew teaches wherein switching the system to privileged mode further comprises switching the system to privileged mode if the system call is not initiated from the privileged region of memory (column 6, lines 43-47, Draves).

Claims 45 and 68:

Claims 45 and 68, the combination of Draves in view of Glew teaches wherein determining whether the memory address is in the privileged region of memory comprises comparing the address against predetermined address limits (Figure 14, all features and column 11, lines 20-35, wherein the currently active ASID is stored by a processor register, and to translate a specified virtual address, the processor examines entries have the currently valid ASID, and then attempts to find an entry MATCHING , which is equivalent to comparing, the specified virtual address and is such an entry is found, the virtual address is translated using the entry, wherein otherwise, the TLB is updated with the desired entry from the associated databases, Draves).

Claims 46, 59, and 69:

Regarding Claims 46, 59, and 69, the combination of Draves in view of Glew teaches wherein the memory is divided into a plurality of pages (column 1, lines 62-65, wherein virtual memory systems divide virtual and physical memory into blocks, wherein these blocks are fixed in

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sized and referred to as section or pages, Draves), and wherein determining whether the memory address is in the privileged region of memory comprises:

identifying a page of the plurality of pages, wherein the page comprises the memory address (column 12, lines 1-2, wherein the virtual memory in this case is the page beginning at address p-20000000h, Draves); and

determining whether an indicator associated with the page identifies the page as a page in the privileged region of memory (column 11, lines 36-44, wherein a second address mapping that is identified by second address space identifier, wherein each pair correspond to a particular user virtual address page, and wherein the second address space identifier, i.e. ASID, and thus the second entry of the pair are used when executing the kernel from the privilege execution mode, Draves).

Claims 47, 61, and 70:

Regarding Claims 47, 61, and 70, the combination of Draves in view of Glew teaches wherein the indicator is stored in a page translation table (column 11, lines 16-19, wherein each TLB entry is indexed by an address space identifier indicating which user address space is described by the entry and entry also includes a virtual page number and a corresponding physical page number, Draves).

Claim 48, 60, and 71:

Regarding Claim 48, 60, and 71, the combination of Draves in view of Glew teaches wherein a first value of the indicator identifies the page as in the non-privileged (column 12, lines 41-42, wherein using at least a first virtual address space when in non-privilege mode, Draves) and accessible from the privileged region and the non-privileged region (column 12, lines 47-48, using at least a second virtual address space when in the privileged mode, Draves), wherein a second value of the indicator identifies the page as in the privileged region (column 12, lines 50-55, wherein

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virtual address that have been designated for share components, Draves) and accessible from the privileged region and the non-privileged region (column 12, lines 63-64, wherein executing a user process with the user virtual address space in the non-privilege execution mode; and column 13, lines 1-2, wherein executing the system function with the kernel virtual address space in the privilege execution mode, Draves), and wherein a third value of the indicator identifies the page as in the privileged region and accessible only from the privileged region (column 13, lines 37-40, wherein assigning different values to the segment registers that are active in the non-privilege and privilege execution modes, Draves).

Claims 49 and 72:

Claims 49 and 72, the combination of Draves in view of Glew wherein the privileged region is divided into a first privileged sub-region and a second privileged sub-region (column 1, lines 62-63, wherein virtual memory divide virtual and physical memory into blocks, Draves), and wherein a function call from the non privileged region is permitted into only the first privileged sub-region (column 3, lines 22-24, wherein only one address is mapped into kernel address space at a given time, wherein this is equivalent to permitted into only the first privileged sub-region, where address space is the sub-region, Draves).

Claims 50 and 73:

Claims 50 and 73, the combination of Draves in view of Glew teaches wherein the privileged region and the non-privileged region are established during system initialization (Figure 5, all features, wherein a system shareable program module such as a DDL is loaded in a range of virtual memory addresses within the address space of the user process, wherein the DDL includes a portion 25 that remain static during program execution, and a data portion 26 that changes during the execution of the program, wherein Figure 5 illustrates a kernel 24 residing in the upper 2 gigabytes

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of virtual memory and wherein code must either be loaded at a specific preferred virtual memory address, or be modified to run at some other virtual memory address and wherein DDL is configured to execute only in the prescribed range of addresses at which it has been loaded, which is equivalent to system initialization, Draves).

Claims 51 and 74:

Claims 51 and 74; the combination of Draves in view of Glew teaches wherein at least a portion of device driver code is located in the privileged region (Figure 6, diagram 38, wherein a multimedia is equivalent to a device driver and column 6, lines 1-18, wherein additional devices are defined, Draves).

Claims 52 and 75:

Claims 52 and 75, the combination of Draves in view of Glew teaches wherein at least a portion of trusted application code is located in the privileged region (column 4, lines 60-64, wherein having both privilege and non privilege modes of execution is equivalent to a trust application, Draves).

Prior Art Made of Record

1. Draves et al. (US Patent No. 6,349,355) discloses a computer system has a microprocessor that can execute in a non-privileged user mode and a privileged kernel mode.
2. Oliveri (US Patent No. 7,058,786) discloses a computer having different memory address spaces, wherein a method and system is provided for communicating data.
3. Diamant et al. (US Patent No. 6,202,153) disclose a method for selectively connection computer stations to a plurality of communication devices.

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4. Glew et al (US Patent No. 5,948,097) discloses a method and apparatus for performing a system call in a system having a user privilege level and a kernel privilege level, wherein the kernel privilege level is higher than the user privilege level.

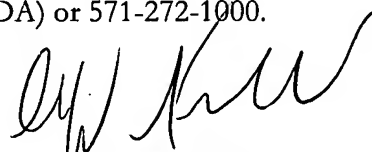
Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Rose whose telephone number is (571) 272-0749. The examiner can normally be reached on 8:00am - 4:30pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Helene Rose
Technology Center 2100
December 11, 2006


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